

Case study on health-promoting urban food systems in Kwekwe



Background

A number of initiatives promoting healthy urban food systems are underway in urban areas of Zimbabwe, but these promising approaches are not always systematically documented, known and shared to support exchange and learning. To address this, the Urban Councils Association of Zimbabwe in association with the Training and Research Support Centre in EQUINET, with review input from Ministry of Health and Child Care (MoHCC) is implementing work in 2022-23 to gather and share evidence on initiatives underway in Zimbabwean cities/towns to promote healthy food systems, to share and promote uptake of promising practice through UCAZ in Zimbabwe, and through EQUINET in east and southern Africa. Kwekwe is one of the urban case studies, using a collectively developed shared framework.

Kwekwe context for urban food systems

Kwekwe city in Zimbabwe's Midlands region is in a mining and industrial area, 223km southwest of Harare the capital city. Rhodesdale gneiss terrain, a rocktype with poor porosity, underlies the whole city, and the city is in a tropical scrub zone, with summer rains (Cheshire et al.,1980; Chenje, 2000). With a 2022 population of 119,863 within the city limits it is Zimbabwe's 7th-largest city (ZimStat, 2022a). Children (0-14 years) constitute 41% of the population (UN DESA, 2022). A 2018 national nutrition survey found 28,3% of children under 5 years in Kwekwe district to be stunted, although none in Kwekwe urban (Food and Nutrition Council, 2018). Nevertheless 17,3% of Kwekwe residents were food poor, 5,6% of which are children (ZimStat and UNICEF, 2019). The most prevalent non-communicable diseases in the city are hypertension, and diabetes mellitus (Hakim et al, 2005).



Kwekwe in Zimbabwe
GISGeography Under CC

Economic activities in Kwekwe city include mining, heavy industry, food processing - including dairy operations, malting, brewing, grain marketing, maize milling, and abattoir services - and urban agriculture (UA). The city also imports food from other districts and provinces. Over half of the city population are self-employed in the informal economy, with activities including open food preparation and sale, vending farm produce, and grocery tuck shops. Artisanal small-scale gold mining is widespread, as a response to poverty and a key source of income (Muchemwa and Patel, 2022), leaving scars in the city in the form of dumps, open pits, and damaged infrastructure, and limiting the land for UA. There are few informal settlements in Kwekwe, in Dutchman's Pool, Chiundura B and mining areas, northwest of the city. Most informal residents eke out a living from gold panning and vending.

Produced March 2023. Written by Mr Sheunesu Ngwenya, Acting Ass Director Health Services- Environment Kwekwe City Council, with guidance, peer review and technical edit from Dr. R Loewenson, Mr. A Kadungure, TARSC; Mr T Machinda, UCAZ and Mr V Nyamandi, Ministry of Health and Child Care (MoHCC). The author extends thanks to Dr. Mkandhla, Town Clerk, and Mrs Shumba, Acting Director of Health Services, Kwekwe City Council for permission to participate in this work; to Kwekwe City Environmental Health Technicians, Mrs Z Muvango, Miss S Nyoni, Mr S Mucharadza and Mr E Nyoni for their invaluable assistance with photography used in the case study and to Welthungerhilfe Poultry Project staff, Vendors Association leadership, and peri-urban farmers who gave permission for photographs used.

Kwekwe City Council

with Urban Councils Association of Zimbabwe (UCAZ), and Training and Research Support Centre (TARSC)



in the Regional network for Equity in health in east and southern Africa (EQUINET)



Urban food systems in Kwekwe

Urban food systems play a key role in achievement of the Sustainable Development Goals (SDGs), especially in ending poverty and hunger (SDG1 and SDG2), and ensuring healthy lives (SDG3) (Barbour et al., 2021; Payen et al., 2022). Gaps in achieving the SDGs are recognised to call for increased agricultural productivity and incomes for small-scale food producers and opportunities for value addition and non-farm employment (Zimstat, 2022a). Kwekwe City Council has thus made several urban food system interventions, constructing farm produce/vegetable markets in over 15 locations in the city, including in the central business district (CBD), shopping centres, open spaces and beerhalls. In 2010, Council entered into a public-private 'build-own-operate-transfer' (BOOT) partnership with a local company to build shops to accommodate small to medium businesses, including for food vending and processing. The city health department established an environmental health post in 2021 to monitor and ensure food hygiene and health standards, and has set enabling legislation for this.

Promoting food safety and control of ultra-processed foods

Ultra-processed foods associated with obesity and non-communicable diseases are sold in Kwekwe, including breakfast cereals, soft drinks, packaged fruit juices and snacks, flavoured yogurts, reconstituted meat products (sausages and nuggets), and fast foods.

Kwekwe's environmental health inspectorate implements robust inspection and monitoring, in collaboration with the Government Analyst Laboratory in Harare and local private laboratories, to ensure that food sold in shops and markets is free from contamination and adulteration, and meets the requirements of the Foods and Food Standards Act (CAP 15:04) and Kwekwe City (Public Health) by-laws (Statutory Instrument (SI) 501 of 1981). Samples of processed foods, including ultra-processed foods, are collected from shops and sent to the Government Analyst Laboratory for chemical, physical, and microbiological analysis, including of food supplements, aflatoxins, additives and moisture content, of the quality of packaging materials, and of labels and food descriptions. The inspectorate team also monitors and controls the sale, importation, manufacture, and blending of foods. When quality standards are not met the law provides for the food to be seized, recalled, prohibited from the sale or manufacture and disposed of. For example, in 2015 Dragon and Twizza energy drinks from South Africa were removed from all shops in the city by environmental health inspectors following a MoHCC notice that the products failed to meet legal requirements by not naming artificial flavours in the ingredient list and making claims to maximise "mental and physical performance" that could not be substantiated.

At council vending markets, food inspectors collect different samples of fresh agricultural produce quarterly for bacteriological quality checks of coliforms, faecal coliforms, and e-coli. The samples are sent to the Government Analyst Laboratory as the Council lacks laboratory equipment. City health inspectors also enforce transport and storage standards within the city to ensure that market produce is not contaminated. When farmers, wholesalers, and vendors fail to comply with standards, while their food is either condemned, prohibited for sale, or destroyed as provided for in the Foods and Food Standards Act (CAP 15:04), and traders and retailers are also provided with education on food safety, and advice on reputable suppliers.

Health inspectors work closely with municipal police to ensure that food vending is done in designated sites to prevent food contamination, or sale of prohibited foods to the public, in contravention of the Kwekwe City (Hawkers and Vendors) by-laws, 2021. Council designated sites are provided, with potable water and sanitation and concrete or paved floors, stalls, and sheds that not only protect the agricultural produce but also shelter the traders. The local authority periodically maintains and repairs markets and associated infrastructure to maintain and improve health and safety standards, including replacing or fixing leaking roofing sheets, unblocking sewers, and replacing stolen or broken fittings.

In early 2023, toilets in 3 market sites are being refurbished and discussions are underway for a private company to upgrade the CBD farmers market using a BOOT model.



Kwekwe CBD market sheds set to be replaced with modern structures. S Ngwenya, 2023

The city has established home industrial zones in six city sites where small-scale food processors operate, with maize-milling, and processing of peanut butter and cooking oil, maputi (maize corn) and 'fizzy' drinks. Various measures are integrated to promote health. For example, the grinding mill shown adjacent adds iodine and vitamin nutrients to fortify maize meal, in line with national law.

Council Health inspectors inspect and monitor processors to ensure that they comply with health and hygiene standards in the Kwekwe (Registration of Premises) by-laws (SI 812 1979) and Kwekwe (Public Health) by-laws (SI 501 1981). Fizzy drink samples are also periodically sent to the Standards Association of Zimbabwe for quality and safety compliance checks at the cost of the producer.



Sugden Grinding Mill in Mbizo 11 Home Industry, S Nyoni, 2023.

These processes face some constraints. Currently, the local authority has no laboratory capacity to identify and test novel and genetically modified foods and information on this is not disclosed on the labels for most foods sold in shops. The Government Analyst also seems to not to have the capacity for such tests. A further handicap in inspecting and monitoring across the food chain for locally produced foods is that most of the foods sold at markets in the city are produced outside the city, making it expensive or infeasible to trace the foods to their sources.

Urban agriculture in Kwekwe

Urban agriculture (UA) can contribute to food security through high yields and sustainable, resilient food systems, and in promoting UA local authorities can leverage the benefits of healthy local food consumption and ecological wellbeing (Payen et al., 2022; Barbour et al., 2021).

In Kwekwe city, UA is prevalent but not formally organized. Most urban farmers cultivate land belonging to the local authority or central government without title deeds or lease agreements, and at undesignated sites like roadsides. UA on undesignated lands such as roadsides, roundabouts, public parks, and vacant lots has in the past led to conflict between residents and the local authority, with the latter invoking by-laws to prohibit farming and destroying the crops. However, the local authority has now adopted a more people-centered approach, considering the food security needs of poor residents and noting that UA prevents vacant sites being used for waste dumping. The local authority engages residents growing crops at undesignated sites that pose a danger to public safety and the environment the harms this can lead to, and advises on other open spaces for UA,. This has helped to reduce confrontation between the parties.



Community garden, Mbizo 9. S Nyoni, 2023

Some residents of informal peri-urban settlements practising UA may have their land expropriated by the local authority or land developers. The informal nature of this UA and a lack of dialogue and consultation on UA between the local authority and residents has also resulted in damage to or blocking of sewer lines by residents to tap raw sewage to water crops, with the vegetables or other food crops produced infected with helminths. This has led to outbreaks of helminthiasis (from roundworms and pinworms) reported from clinics in Mbizo, where these practices are occurring. City health inspectors thus engage the community on the use of sewage for farming, advising farmers on which crops that can be watered with waste-water. However, cases of helminthiasis continue to be reported from these areas of peri-urban farming.

Some peri-urban agriculture is practiced in more formal commercial approaches on plots' ranging from 0.5 and 5 hectares, growing maize, vegetables, and legumes. Further, almost every urban home in Kwekwe has a garden ranging from 6m² in high-density areas to 1 ha in low-density areas, where residents grow vegetables and crops all year round, mainly for subsistence.

Schools or other institutions also have gardens for crops and vegetables for sale or consumption. School children maintain the gardens as part of their curricula, and are taught how to garden, the importance of vegetables in their diet, and how to prepare vegetables for consumption. The vegetables from school gardens are sold to staff members, pupils, and residents. The revenue from sales is used by the school for school needs, such as maintaining or repairing toilets, window panes and other infrastructure, buying refreshments for sports functions, or fuel for the school bus.



School nutrition garden, Mthonjeni Primary School, Mbizo S Muchararadza, 2023



Welthungerhilfe Poultry Market shed, Mbizo 2. E Nyoni, 2023

Kwekwe residents keep small livestock (chickens). Section 53 of Kwekwe (Public health) by-laws (SI 501 1981) allows for 25 birds to be kept in households without seeking council approval. Poultry-rearing supplements family food and earnings from sales at council approved markets.

In 2020, a non-governmental organisation (NGO), Welthungerhilfe constructed a live-bird market in Mbizo 2, where residents are not charged to sell their produce. The local authority provided the land, approved the plans, and connected potable water to the facility. The poultry market is located close to the biggest market in Mbizo, and is fenced, with solar energy. The Welthungerhilfe poultry market shed was built at the height of COVID-19, and provided Mbizo residents with a safe market for their live poultry and products.



Kwekwe Municipal Abattoir dispatch area
E Nyoni, 2023

The local authority has also other poultry markets in Mbizo and Amaveni for residents. The city health inspectors monitor hygiene standards at these poultry markets, including the health of the live birds and the state of fowl runs at homes where chickens are reared, to ensure also that noise and bird droppings are controlled.

Kwekwe city has a grade B abattoir that is currently leased to a private company. A local authority meat inspector ensures that meat sold in the city is free from zoonotic diseases and parasites, as provided in the Public Health (Abattoir, Animal and Bird Slaughter and Meat Hygiene) Regulations (SI 50 1995). The abattoir, located in a heavy industry site, can slaughter 100 bovines a day, with most of the animals slaughtered coming from neighbouring areas. The meat is sold locally in approved butcheries inspected by the local authority's health inspectors - in terms of the Kwekwe (Registration of Premises) by-laws (SI 812 1979) - as well as in Harare, and other towns.

The local authority has allowed residents to use treated and stabilised waste water or sewage from the Northern Sewage Works and the neighbouring stabilisation ponds to cultivate crops such as maize and small grains. About 50 ha of land near the treatment plant is currently under crop farming, and municipal police regularly patrol and inspect these sites. A new law still under review, the Kwekwe City (Water and Sewerage Drainage) by-laws, provides that "no person shall use any reclaimed water for irrigation of any land on which salad crops, vegetable crops or berry fruits, which are to be eaten raw" (Sec 28).

The produce from the plots is sold at city markets and council health inspectors monitor the food from this area for contamination. Although cases of helminthiasis have been reported from the consumption of some unauthorised crops from this area, such as fruity, leafy, and tuber vegetables, prompt control measures have been instituted to protect public health, with reminders of obligations in terms of the Water and Sewerage Drainage by-laws and the consequences of failures to comply.

Council environmental health technicians obtain weekly information on helminthiasis cases from health facilities and do follow-up investigations. Cases and their contacts are given health education and linked to

council clinics for treatment. Health inspectors periodically engage and sensitize farmers in the area on the hazards associated with wastewater and how to prevent the transmission of infectious diseases and parasites. The local authority's Trade Waste Laboratory monitors the quality of the wastewater from the treatment plant to ensure that the effluent meets nationally prescribed standards. Physicochemical and Microbiological analyses of the water are done quarterly while nutrient, PH, metals, and chemical oxygen demand analyses are done twice a week by the council laboratory. The laboratory analysis of the wastewater helps the treatment plant produce quality effluent, before discharge to the environment.



Bean crop at a plot in Dutchman's Pool area. S Ngwenya,2023

Other aspects of Kwekwe's urban food system

As noted earlier, the local authority food inspectors monitor all open and packaged food in line with the Kwekwe (Public Health) by-laws, (SI 501, 1981), and Kwekwe (Registration of Premises) by-laws (SI 812 1979). All formal and informal food outlets are inspected and monitored regularly to ensure that they follow prescribed procedures in food preparation, transportation, processing, and storage, with breaches of law managed in line with measures described earlier. During pandemics/epidemics, such as of COVID-19 and cholera, the local authority bolsters preventive and control measures guided by Public Health Act (CAP 15:17), and the local authority's Emergency Response Preparedness Plan.

Kwekwe city last experienced cholera imported from nearby local authorities and towns in the national epidemic in 2008 -2009 (Cuneo et al., 2017), with no local cases recorded due to the robust response of the city health department's rapid response team, and better potable water supply and sanitation compared to neighbouring local authorities. All food outlets were strictly monitored, and health promotion activities strengthened and escalated. Local companies assisted the local authority to buy potable water treatment chemicals and other non-state actors (Oxfam and Plan International among others) supported the city's response with tents, medicines, protective equipment, buckets, beds, and allowances for frontline health workers. Plan International installed a borehole in Mbizo 15 in 2022, enabling residents to access water for drinking and gardening.

Dialogue and co-production in the food system

The local authority has facilitated the formation and operationalisation of Vendors' Association committees, elected by bona-fide vendors every 5 years at every market, who work closely with the Kwekwe Health Department, including on health and hygiene maintenance, levies and licence fees, and provision, expansion, and repair of infrastructure. The Health Department takes unresolved issues from the associations to the Town Clerk, who forwards these to the council through the Health, Environment, and Conservation Committee for review and feedback. Residents and urban farmers can write to the Town Clerk with requests to lease council land for resolution for the relevant Council committee, or further submission to the Ministry of Local Government and Public Works. Private actors and NGOs seeking to assist traders and farmers approach the Director of Housing and Community Services, who follow the above processes to sign memoranda of understanding before projects are initiated. However, the city does not have a clear development plan, implementation strategy, or budget for UA, nor Food and Nutrition committees or sustained formal links with residents' associations on urban food systems.

Enablers and challenges

The local authority's ten environmental health officers and technicians provide key capacities for the range of activities described in earlier sections of this case study brief, including communication with and guidance of key mechanisms like the vendor association committees, and referral where needed to higher council authorities, including the Director of Health Services. The municipal police have assisted to ensure that vending is done at designated sites, where adequate water and sanitation facilities are provided, helping to maintain hygiene standards.



New market under construction, Mbizo 4 Shopping Centre. E Nyoni, 2023

The regular sampling of food products by council health inspectors from shops and markets, and analysis by the Government Analyst, is an important contributor to food safety, but the turn-around time is long, the laboratories cannot analyse genetically modified foods, and results sometimes come too late to combat outbreaks. The council thus often uses more costly private laboratories, or private courier services, which are not sustainable. Demand for vending market stalls, and for land for UA outstrip the capacities and resources available to the local authority. UA is still dependent on seasonal rains, due to inadequate water harvesting or storage technologies, meaning that some farmers use water from streams contaminated by mine drainage or sewage, generating health risks. Inadequate financial support and an updated legal framework are further barriers to UA. With limited resources the council is constrained in responding to such challenges. Local authority partnerships with NGOs and companies described in this case study have assisted to respond to some of these challenges.

Future plans

Kwekwe Council plans to establish a public-private partnership to build and upgrade vending markets, adopting a model constructed by a company in Gweru, and providing 400 wholesale and retail stalls. The model provides storage and refrigeration facilities for farm produce, more spacious, modern public conveniences and a CC-TV system to reduce crime. The company would construct and administer the market at own cost under a 15 year lease agreement, and the local authority would be paid 30% of gross revenue, as well as rates, and service charges. City health inspectors would continue to monitor health and hygiene standards at the market.

Plans are underway to cut the turnaround time of food sample analysis by sending them for analysis to Kwekwe Polytechnic. A pilot programme is underway for more rapid return of results, with council advising on remedial actions to be taken by the relevant retailers/trader/business owners. In the next 4-year strategic plan, the health department intends to build a small laboratory, and to purchase potable analytical instruments for food quality checks.

In 2023, the local authority entered into an agreement with a company to manufacture organic fertilizer from municipal solid waste. In the pilot stage, biodegradable waste is collected from agricultural markets using council skip bins and delivered to the company's composting sites, with vermicomposting technology used to convert organic waste into fertiliser. If the pilots are successful, this will reduce the transport costs for and amount of solid waste deposited at the Council's dumpsite, reduce emission of methane gas, and generate income for residents involved in waste reclamation and recycling. The company will build composters for residents, and organic refuse will not be placed in bins for municipal collection. The company will purchase the processed compost from residents to make fertiliser, further supporting incomes and UA.

References

1. Barbour L, Lindberg R, Woods J, Charlton K, Brimblecombe J. (2021). Local urban government policies to facilitate healthy and environmentally sustainable diet-related practices: a scoping review. *Public Health Nutrition*: 25(2), 471–487. Doi: 10.1017/S1368980021004432.
2. Chenje M. (2000). State of the Environment in the Zambezi Basin. Southern African Development Community, IUCN, Zambezi River Authority (ZRA), and SARDC, Maseru.
3. Cheshire PE, Leach A, Milner, SA. (1980). The geology of the country between Gwelo and Redcliff. Salisbury. *Zimbabwe Geological Survey Bulletin*. <https://worldcat.org/title/11422771>.
4. Cuneo CN, Sollom R, Beyrer C. (2017). The Cholera Epidemic in Zimbabwe, 2008–2009: A Review and Critique of the Evidence. *Jo Health and Human Rights*. 19(2): 249–264
5. Government of Zimbabwe (2018). Public Health Act (CAP 15:17). Government (Govt) Printer, Harare.
6. Government of Zimbabwe. (2001). Foods and Food Standards Act (CAP 15:04). Govt Printer, Harare.
7. Food and Nutrition Council (FNC). (2018). Zimbabwe National Nutrition Survey. FNC, Harare.
8. Hakim JG, Mujuru N, Rusakaniko S, Gomo ZAR. (2005). National Survey Zimbabwe Non-Communicable Disease Risk Factors, UZ College of Health Sciences/MoHCC, Harare.
9. Ministry of Local Government and Housing (MoLGH) (1979). Kwekwe (Registration of Premises) By-laws, SI 812 1979. Govt Printers, Harare.
10. MoLGH (1979). Kwekwe (Public Health) By-laws, SI 501 1981. Govt Printers, Harare.
11. MoLGH (2005). Kwekwe (Trading) By-laws, SI 101 2005. Govt Printers, Harare.
12. MoHCW (1995). Public Health (Abattoir, Animal, and Bird Slaughter and Meat Hygiene), SI 50 1995. Govt Printers, Harare.
13. Muchemwa C, Patel J. (2022). Human development as a pathway to transformed and peaceful societies governance and development in Zimbabwe. Institute for Justice and Reconciliation. Cape Town
14. Nardocci M, Leclerc B, Louzada M, et al. (2019). Consumption of ultra-processed foods and obesity in Canada. *Canadian Jo Public Health*.110:4–14.
15. Payen FT, Evans DL, Falagán N, et al. (2022). How much food can we grow in urban areas? Food production and crop yields of urban agriculture *Earth's Future*, 10. doi. org/10.1029/2022EF002748.
16. UN DESA. (2022). World Population Prospects: 2022 Summary of Results. United Nations. New York.
17. UNICEF. (2022). Nutrition Stabilisation Centres giving hope to children in Zimbabwe. UNICEF, Harare.
18. ZimStat and UNICEF (2019). Zimbabwe Child Poverty Report 2019. Zimstat, Harare, Zimbabwe.
19. ZimStat. (2022a). Population and Housing Census Report Preliminary Results on Fertility. Zimstat, Harare
20. ZimStat. (2022b). Assessment of National Statistics System report. Zimstat, Harare